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13 March 1957

File P-79C

MEMORANDUM FOR: THE RECORD

SUBJECT : Contract PSC-302 with RCA for UMR-1 Radio Sets
(P-79C)

REFERENCE : Memo for Record dtd 8 February 1957 Subj: RCA
UMR-1 Radio Transmitter-Receiver, P-79C

1. The standard UMR-1 sets called for by the contract have been delivered; this memorandum concerns the quantity being modified for concealed operation.

2. Upon review of the reference, it was considered that the prototype described therein did not meet all operational requirements. The principal objection was that the only mode of reception provided required use of the horn transducer as a loudspeaker, and that the sounds from this might be objectionable under some circumstances. In order to investigate the possibility of using the radio set with a hearing-aid type of earphone, a meeting was held at the RCA plant in Camden on 8 March 1957 with the following in attendance:

R. F. Weil	RCA (contracting)
Steve Heller	RCA (engineering)
W. L. Smith	APD

3. A review of the circuits and physical arrangement disclosed the following:

a. For either transmission or reception the equipment will operate with any transducer having an impedance of about 1000 ohms.

b. A switch section is included for switching a single transducer between transmitter and receiver. With the radio out of the case the switch terminals are readily accessible.

c. Two audio jacks are provided. One is connected to the switch arm for use with a single transducer, and the other is connected to the fixed "transmit" switch terminal for use on transmit-only missions.

d. From the electrical

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d. From the electrical standpoint it would be feasible to provide a third jack connected to the fixed "receive" switch terminal, and such an arrangement would provide the maximum flexibility in choice of transducers. However, adding this jack would involve reworking a fairly critical part of the equipment, would delay delivery, and might increase the cost.

e. With the present circuit an insertion earphone connected to the switched jack will act as a microphone on transmission, but the level of pickup is too low for adequate modulation. If a microphone is simultaneously connected to the transmit jack the microphone output will override the output of the earphone on transmission.

f. If the output from the earphone on transmission is considered objectionable, it can be eliminated by moving one soldered connection on the switch.

g. As mentioned in the reference, a resistor may be added internally (at the switch terminals) in order to decrease the receiving volume to a level suitable for use with an insertion earphone.

4. In view of the above, and in the interest of early delivery, it seemed desirable to leave the circuit as is. Instructions will be furnished for changing the switch connections and adding the resistor where necessary. The various operating arrangements which may be used are shown schematically on the attached sheet.

5. It is expected at least a partial shipment on the modified sets will be made by 1 April 1957.

6. Additional batteries will be shipped as soon as possible in order that tests on the unmodified sets may proceed.

7. Subsequent to issuance of the contract RCA discovered that cost of the batteries had been included twice. A reduction of about \$2200 will result from correction of this error.

8. A brief discussion was held with [] regarding the AN/PRC-34 and AN/PRC-36. These are the Signal Corps sets which have been so widely publicized recently; the former fits in a helmet and the latter attaches to a cartridge belt. The Army has ordered a service test quantity of 3000 of these equipments at a cost of about \$500 each, and delivery is expected between September 1957 and March 1958. Only developmental "breadboards" have been constructed as yet, and much engineering work must be done. The performance is about the same as the UTR-1 and the total volume is identical. The sets consist of "modules" or sealed assemblies having a thickness of about 3/8", and these may be disposed physically in various arrangements without major

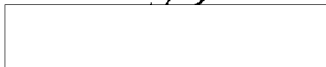
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redesign.

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redesign. They may turn out to be somewhat more rugged and reliable than the UMR-1. I expressed an interest in these sets because of their versatility as regards body concealment; it appears that RCA would be pleased to modify a small quantity for our requirements provided the modules can be manufactured during the Army contract.



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Attachment:

Mentioned Above

Distribution:

Orig. - P-79C

1 - Extra

1 - Chrono

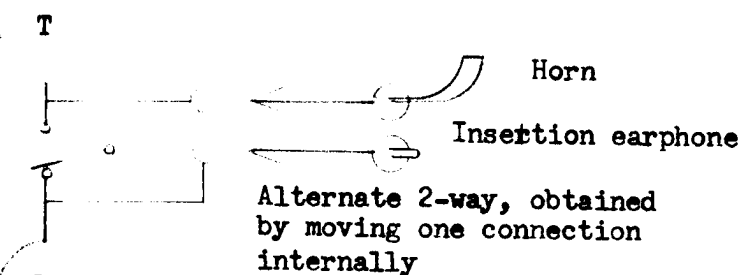
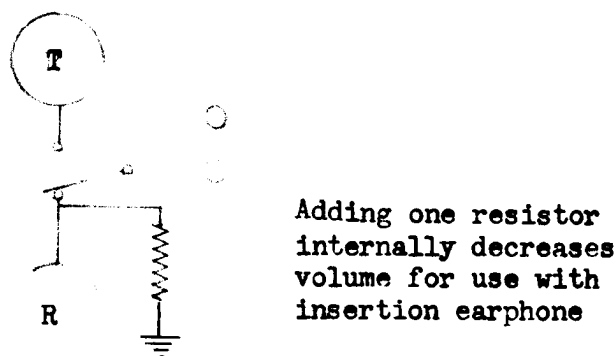
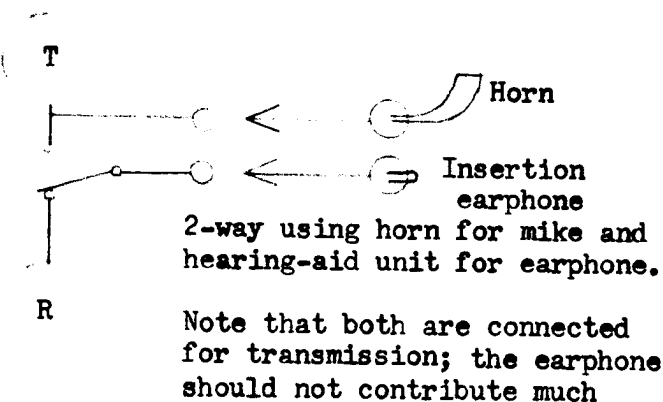
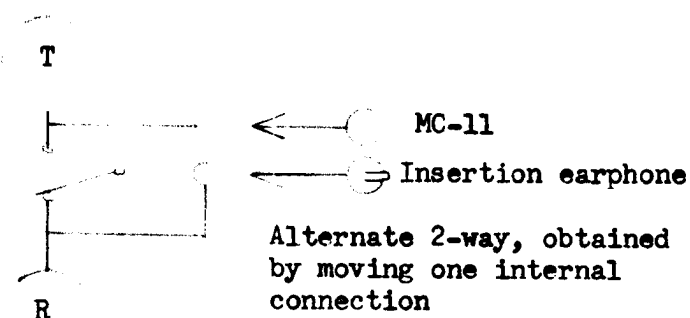
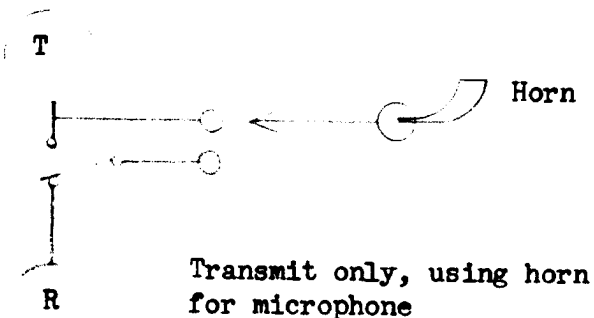
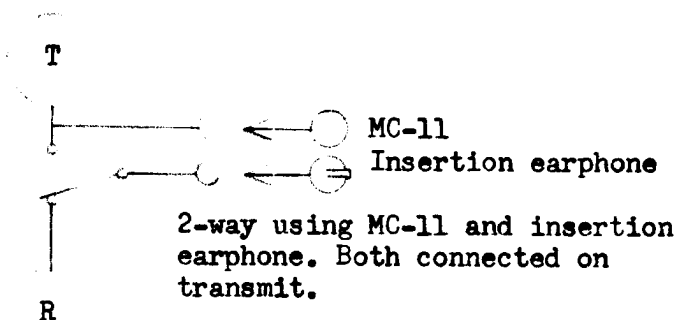
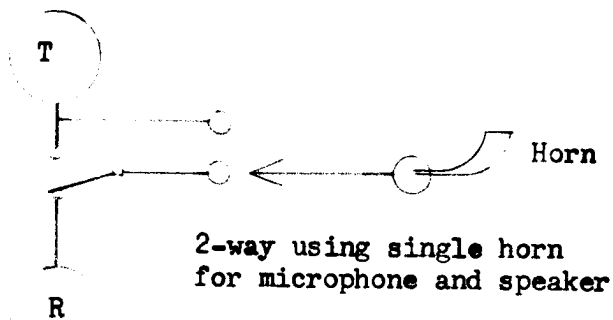
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RCA UMTR-1 MODIFIED FOR CONCEALMENT
Microphone-headphone terminals and switching details.

The radio will operate with any transducer having an impedance of about 1000 ohms. Only the horn transducer is furnished. The driver for this is a hearing-aid unit which may be detached and used as an insertion earphone.

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WLS 3/11/57